PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number
00-SIN-331 (851663.473USPC)

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on _____	Application Number	Filed
	10/500,453	March 10, 2005
Signature _____	First Named Inventor Patricia Wei Yin Chiang	
Typed or printed name _____	Art Unit 2482	Examiner Jessica Marie Roberts

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

- ☐ applicant/inventor.
- ☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96.)
- ☒ attorney or agent of record. Registration No. 44,527
- ☐ attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____.

/Jeremiah J. Baunach/
Signature

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May 17, 2011
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☒ *Total of 1 forms are submitted.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants	:	Patricia Wei Yin Chiang et al.
Application No.	:	10/500,453
Filed	:	March 10, 2005
For	:	VIDEO ENCODING

Examiner	:	Jessica Marie Roberts
Art Unit	:	2482
Docket No.	:	00-SIN-331 (851663.473USPC)
Date	:	May 17, 2011

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW REMARKS

Commissioner for Patents:

Claims 5-7, 10-16, 25-26, and 30-46 are pending. This request for pre-appeal review is in response to a final Office Action dated February 17, 2011. In the final Office Action, independent claim 34 was rejected as obvious over Lee ("Target Bit Matching for MPEG-2 Video Rate," IEEE) in view of Pullen (U.S. Pat. No. 5,923,376) and independent claim 42 was directed as obvious over Lee, Pullen, and Oikawa (U.S. Pat. No. 5,677,734).[1] Claims 5-7, 10-16, and 25-26 and 30-33 were allowed. Independent method claim 34 recites, in part (emphasis added):

> determining a relationship between first metric values and respective quantities of encoded video data, the first metric values generated by encoding reference video data from a reference video, the reference video including a plurality of macroblocks, using a metric function and respective first encoding parameters;

[1] Several claims dependent on claims 34 and 42 were also rejected, but the present request is being limited to claims 34 and 42 due to the five page limit for the present request.

after determining the relationship, . . .

receiving an input video, the input video including a plurality of macroblocks distinct from the plurality of macroblocks of the reference video;

generating second metric values from input video data of the input video using respective second encoding parameters;

selecting at least one of the second encoding parameters based on a desired quantity of encoded video data and the relationship between the first metric values and the respective quantities of encoded video data; and

encoding the input video data using the selected at least one encoding parameter.

Lee and Pullen do not teach or suggest receiving an input video after determining a relationship between first metric values and respective quantities of encoded video data, the first metric values generated by encoding reference video data from a reference video using a metric function. Instead, Lee uses previously encoded macroblocks of the same video as part of its encoding algorithm, and does not teach or suggest using any other video apart from the video that is being encoded.[2] Thus, Lee never suggests receiving an input video of macroblocks after determining such a relationship using a reference video of macroblocks.

Applicants respectfully submit that the Examiner is mistakenly confusing the "reference macroblock" of Lee with the "reference video" of claim 34, which includes a plurality of macroblocks. The Examiner explains in detail how Lee is deemed to use information (such as scaling factor) regarding a previous macroblock to encode a current macroblock. However, such information is irrelevant to the claimed invention because a reference macroblock cannot include a plurality of macroblocks, and thus, cannot be the reference video recited in claim 34. Moreover, nothing in Lee suggest receiving the current macroblock or any other macroblocks after determining a relationship between metric values generated by encoding reference video data from a reference video of plural macroblocks.

[2] The remainder of the remarks addresses Lee without discussing Pullen, because the Examiner relies on Pullen solely as showing a generic video encoder, which is immaterial to the claim features being addressed. However, it should be understood that the combination of Lee and Pullen does not suggest those features.

Furthermore, even if Lee did teach or suggest, "after determining the relationship ... receiving input video including a plurality of macroblocks distinct from the plurality of macroblocks of the reference video," Lee still does not teach or suggest "generating second metric values from input video data of the input video using respective second encoding parameters." The Examiner alleges that this element is disclosed by Lee because, as the Examiner states in the Response to Arguments Section on page 2 of the final Office Action, "Lee discloses to select the reference macroblock that has the closest scaling factor, where the scaling factor is the normalized activity, and then adjust the initial quantization parameter."

The value of the particular reference quantization parameter for a macroblock of Lee is determined based on the bit rate control parameter and on the metric value of the current block. In particular, the spatial activity metric value (N_act_j) of Lee for a macroblock of a particular video stream is used as the scaling factor γ_i in determining the reference quantization factor q_i (i.e., encoding parameter) for that macroblock. See the excerpt below from page 67, Section 3.2, of Lee:

> For estimating the reference quantization parameter for each macroblock, we define the following equation based on rate distortion theory [2]:
>
> $q_i = 2^C \times \gamma_i$
>
> where C is a parameter that controls bit rate, and γ_i is a scaling factor which characterizes the properties of the current macroblock....We may use N_act_j as the scaling factor γ_i for macroblock i.

Thus, Lee describes generating the reference encoding parameter for each macroblock using the metric value of that macroblock (while not distinguishing between any first and second encoding parameters), as opposed to "generating second metric values from...using respective second encoding parameters," as recited in claim 34. Accordingly, for at least these reasons, Lee does not teach or suggest "generating second metric values from input video data of the input video using respective second encoding parameters"

Next, the Examiner alleges that Lee discloses "selecting at least one of the second encoding parameters..." This is incorrect. Lee describes generating a quantization parameter Q_i for a current macroblock using the reference quantization parameter Q_{ref} for the current

macroblock and a difference (Δ) between the actual number of coding bits (BIT_{actual}) and the number of estimated coding bits ($BIT_{estimated}$) of the current macroblock. Such values are used to determine the single quantization parameter Q_i for the macroblock without using "selecting" step to select from among plural generated encoding parameters after they are generated. See Figure 1 of Lee on page 68.

In addition, claim 34 states, "first metric values," are "generated by encoding reference video data from a reference video," and the "second metric values" are generated "from input video data of the input video" (emphasis added). As shown above, Lee does not describe an "input video including a plurality of macroblocks distinct from the plurality of macroblocks of the reference video. (emphasis added). Thus, Lee cannot describe "first metric values" and "second metric values" generated as recited in claim 34. For at least these reasons, Lee does not teach or suggest "selecting at least one of the second encoding parameters based on a desired quantity of encoded video data and the relationship between the first metric values and the respective quantities of encoded video data."

Thus, for at least these reasons, Applicants respectfully submit that independent claim 34 is allowable over the relied-upon references.

Claim 42 is directed to a video decoding module and recites language that is similar, although not identical, to the language of claim 34. For example, claim 42 recites "a memory configured to store a predetermined relationship between first metric values and respective quantities of encoded video data, the predetermined relationship being determined during a calibration process and based at least in part on generating the first metric values from reference video data of a reference video … including a plurality of macroblocks…" and "a predictor module configured to receive input video data from an input video … including a plurality of macroblocks distinct from the plurality of macroblocks of the reference video." As discussed above, Lee and Pullen do not suggest receiving an input video that is distinct from a reference video. Oikawa does not supply the missing teaching, and instead is being cited simply for teaching the use of a memory (page 4, lines 12-13 of OA).

Similar to the selecting step of claim 34, claim 42 recites "a selector module configured to select at least one of the second encoding parameters based on a desired quantity of

encoded video data and the stored predetermined relationship." As discussed above, Lee and Pullen do not describe any selection from among plural second encoding parameters, and Oikawa does not supply the missing teaching. Even if the prior art had suggested some selection between parameters rather than the determination of a single parameter from an equation as in Lee, the prior art still would not suggest making a selection based on a stored predetermined relationship that was determined based on reference video data of a reference video, because none of the references suggests any reference video distinct from the input video.

Thus, the rejections of claims 34-46 cannot be sustained.

Respectfully submitted,

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